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26; Nebula and Comet Seeking, LEWIS SWIFT, 30; A Lesson on Harvest Moon, ELIZA A. BOWEN, 32; Shooting Stars: How to Observe Them and what They Teach Us, W. F. DENNING, 34; The Face of the Sky, 38; Planet Notes, 39; Planet Tables, 40; Comet Notes, 44; General Notes, 45; Publisher's Notices, 48. WILLIAM W. PAYNE, CHARLOTTE R. WILLARD. Messrs. WM. WESLEY & SON, London, England, sole foreign agents for *Popular Astronomy*.

COMPARISON STARS TO *EUCARIS* (181).

The stars following, used for micrometer comparison with *Eucharis* (181), were observed with the meridian circle in October, the mean epoch being 1893.79.

L. O. No. *	A. R. 1893.0.	Decl. 1893.0	S. D.	Mag.
	h. m. s.	° ' "		
221431	22 14 8.49	-18 0 4.1	6103	8.5
221655	22 16 32.81	-17 13 31.0	6504	8.9
221951	22 19 29.13	-16 43 52.6	6080	9.5

Each star has been given three observations, and the last one was also observed once with bright wire illumination.

R. H. TUCKER, Jr.

40-INCH REFRACTOR OF THE YERKES OBSERVATORY.

A cut of this instrument is given in the frontispiece of the present number printed from an electrotype kindly furnished by Professor PAYNE, editor of *Astronomy and Astrophysics*.

The following statistics will be of interest:

"This instrument, exhibited at the World's Fair in the center aisle of the Manufacturers and Liberal Arts Building, is the largest refracting telescope in the world. It is the gift of Mr. CHARLES T. YERKES to the University of Chicago. The column and head, of cast iron, rise to a height of 43 feet, and weigh 50 tons. The polar axis, of steel, is 15 inches in diameter, 13½ feet long, and weighs 3½ tons. The declination axis, also of steel, is 12 inches in diameter, 11½ feet long, and weighs 1½ tons. The tube is of steel, 64 feet long, and 52 inches in diameter at the center, taper-

* See *Publications A. S. P.*, Vol. II, page 307.

ing towards the ends; its weight is 6 tons. The driving-clock, weighing $1\frac{1}{2}$ tons, is located in the upper section of the column; it is wound automatically by an electric motor and is controlled by a double conical pendulum; it is geared to the main driving-wheel, 8 feet in diameter, which, when clamped to the polar axis, revolves it, together with the tube and all its accessories, all weighing 20 tons, in exact sidereal time. All quick motions, slow motions, and clamps, both in Declination and Right Ascension, are operated by hand, and also by electric motors controlled by a switchboard placed within easy reach of the astronomer. The assistant astronomer likewise has full control of all motions from the balcony which surrounds the head, and which, together with the clock, is reached by the spiral staircase. The total weight of the telescope is 75 tons."

WARNER & SWASEY.

A NEW STAR IN THE SOUTHERN SKY.

A telegram from the Harvard College Observatory announces that a new star was discovered on October 26 by Mrs. FLEMING (on a photographic plate). Its position is

R. A. = $15^{\text{h}} 22^{\text{m}} 16^{\text{s}}$. Decl. = $-50^{\circ} 14'$.

Its magnitude was 7.0 on July 10, 1893. Subsequent letters from Professor PICKERING say that 13 plates of this region were taken in the years 1889 to 1893 and that the plate of July 10 is the first one on which the *Nova* appears. "Its spectrum is identical with that of *Nova Aurigæ*."

E. S. H.

November 5, 1893.

GEOLOGICAL AND SOLAR CLIMATES.

Under the above title Dr. MARSDEN MANSON has published a thesis, issued by the University of California, of more than ordinary merit. Geologists tell us that large areas of now densely populated regions of the earth were at one time covered with ice to a depth of many feet. To most scientists the explanations hitherto given, to account for the cause of the so-called *Glacial Epoch*, seem wholly inadequate. Dr. MANSON's treatment of the problem is unique, and to many it will appear quite convincing. We do not hesitate to recommend it for careful study to those interested in astro-geological physics.

J. M. S.